

Unit 14
Day 1
Quadratic Functions

Quadratic Function:

$$y = ax^2 + bx + c \text{ or } f(x) = ax^2 + bx + c$$

where a, b, and c must be real numbers and $a \neq 0$

Examples:

$$y = 3x^2 - x + 4 \quad \text{Quadratic Trinomial}$$

$$y = 6x^2 + 2 \quad \text{Quadratic Binomial}$$

$$f(x) = \frac{1}{3}x^2 \quad \text{Quadratic Monomial}$$

$$h(x) = (2x - 1)^2 \quad \text{Quadratic Trinomial}$$

Ex1: $f(x) = 2x^2 - 3$

x	-3	-2	-1	0	1	2	3
f(x)	15	5	-1	-3	-1	5	15

Ex2: $y = x^2 - 3x + 2$

x	-3	-2	-1	0	1	2	3
y	20	12	6	2	0	0	2

$\frac{3}{2}$
 $-\frac{1}{4}$

Ex3: $y = 3x^2 + bx - 2$ contains the pt. (2, -4)

Find b

$$-4 = 3(2)^2 + b(2) - 2$$

$$-4 = 12 + 2b - 2$$

$$2b = -14 \quad b = -7$$

Ex4: $y = ax^2 + 3$ contains the pt. (-2, 1)

$$1 = a(-2)^2 + 3$$

$$1 = 4a + 3$$

$$-2 = 4a \quad a = -\frac{1}{2}$$

HW Wksht #1 1-16 all